

IN THE CLAIMS:

These claims will replace all prior versions of claims in the present application.

Cancel claims 1-22. Add the following new claims.

23. (New) A method of manufacturing an electro-optical cell, in particular a liquid crystal cell, or an electrochemical photovoltaic cell including:

- at least a first transparent front substrate whose top surface forms the front face of the cell;

- at least a second back substrate which may or may not be transparent and whose bottom surface forms the back face of said cell;

- the substrates being joined by a sealing frame which defines a volume for retaining sensitive material whose physical properties, particularly optical, or electrical properties are capable of changing,

- the substrates including on their faces that are opposite each other at least one electrode, said electrodes being intended to be connected to an electrical power or control circuit; and

- the electrodes of the cell extending substantially as far as the edges of the cell to form connection means in order to set up the electrical connection between said cell and the power or control circuit,

wherein said method includes the steps of:

- structuring the corresponding electrodes on each of the substrates ;

- depositing a contact bump made of an electrically conductive material on each electrode, in the region where the electrodes will be flush with the edges of the cell,

- structuring at least one wall on one of the substrates, which defines, via its inner lateral face, the volume for retaining the sensitive material, said wall extending in a set back position with respect to the edges of the cell, so as to free the connection contacts, and thus with the electrodes passing through it;

- joining the second substrate to the first substrate;

- introducing a sealing material capable of flowing into the gap defined by said substrates and the external lateral face of the wall until at least a part of said gap is occupied by the sealing material; and

- solidifying the sealing material so that the latter forms the sealing frame of the cell thereby obtained.

24. (New) The method according to claim 23, wherein it further includes the step of cutting the cell such that it has a substantially flat edge with lateral contact zones having a large active surface.

25. (New) The method according to claim 23, wherein the sealing material penetrates the gap by capillary action.

26. (New) The method according to claim 24, wherein the sealing material penetrates the gap by capillary action.

27. (New) A method of manufacturing at least one electro-optical cell, in particular a liquid crystal cell, or an electrochemical photovoltaic cell including:

- at least a first transparent front substrate whose top surface forms the front face of the cell;

- at least a second back substrate which may or may not be transparent and whose bottom surface forms the back face of said cell;

- the substrates being joined by a sealing frame which defines a volume for retaining sensitive material whose physical properties, particularly optical, or electrical properties are capable of changing,

- the substrates including on their faces that are opposite each other at least one electrode, said electrodes being intended to be connected to an electrical power or control circuit; and

- the electrodes of the cell extending substantially as far as the edges of the cell to form connection means in order to set up the electrical connection between said cell and the power or control circuit,

wherein said method includes the steps consisting in:

- structuring the corresponding electrodes on each of the substrates ;

- depositing a contact bump made of an electrically conductive material on each electrode, in the region where the electrodes will be flush with the edges of the cell,

- structuring, on one of the substrates , at least one filling channel defined by two walls which extend at a distance from each other and between which the contact studs are arranged;

- joining the second substrate to the first substrate;

- introducing a sealing material capable of flowing into the filling channel until the entire volume of said filling channel is occupied by the sealing material;
- solidifying the sealing material so that the latter forms the sealing frame, and
- cutting the cell so that the latter has a substantially flat edge with lateral contact zones having a large active surface.

28. (New) The method according to claim 27, wherein a batch of cells is made including two plates common to all of the cells and a network of walls defining, for each cell, a volume for retaining the sensitive material as well as filling channels, which are for filling with a sealing material in order to connect the two plates and form the sealing frames for said cells.

29. (New) The method according to claim 28, wherein a first plurality of holes for filling the volumes with the sensitive material and a second plurality of holes for supplying the sealing material are made in one of the plates.

30. (New) The method according to claim 27, wherein the sealing material penetrates the gap or the filling channel by capillary action.

31. (New) The method according to claim 28, wherein the sealing material penetrates the gap or the filling channel by capillary action.

32. (New) The method according to claim 29, wherein the sealing material penetrates the gap or the filling channel by capillary action.

33. (New) The method according to claim 30, wherein it includes the steps of:
- creating a vacuum in the filling channel;
- making the sealing material penetrate said filling channel, and
- re-establishing the pressure outside the cell such that, via the effect of the pressure difference between the filling channel in which the vacuum prevails and the environmental pressure, the sealing material is driven to the bottom of the filling channel.

34. (New) The method according to claim 31, wherein it includes the steps of:

- creating a vacuum in the filling channel;
- making the sealing material penetrate said filling channel, and
- re-establishing the pressure outside the cell such that, via the effect of the pressure difference between the filling channel in which the vacuum prevails and the environmental pressure, the sealing material is driven to the bottom of the filling channel.

35. (New) The method according to claim 32, wherein it includes the steps of:

- creating a vacuum in the filling channel;
- making the sealing material penetrate said filling channel, and
- re-establishing the pressure outside the cell such that, via the effect of the pressure difference between the filling channel in which the vacuum prevails and the environmental pressure, the sealing material is driven to the bottom of the filling channel.

36. (New) The method according to claim 23, wherein a layer of photoresist material is deposited on one of the substrates, said layer will then be structured by photo-etching techniques to give it the shape of one or several walls .

37. (New) The method according to claim 27, wherein a layer of photoresist material is deposited on one of the substrates, said layer will then be structured by photo-etching techniques to give it the shape of one or several walls .

38. (New) The method according to claim 36, wherein the photoresist layer is structured so as to form, not only the wall or walls, but also distance structures for maintaining a constant distance between the two substrates of the cell.

39. (New) The method according to claim 37, wherein the photoresist layer is structured so as to form, not only the wall or walls, but also distance structures for maintaining a constant distance between the two substrates of the cell.

40. (New) The method according to claim 23, wherein the sealing material is chosen from the group formed by resins that can be polymerised by sensitisation using a light or by heating by raising the temperature of the ambient medium, by thermoplastic resins, by cyanoacrylate adhesives and by dual component adhesives whose components harden over

time or via the effect of a temperature increase when they are placed in the presence of each other.

41. (New) The method according to claim 27, wherein the sealing material is chosen from the group formed by resins that can be polymerised by sensitisation using a light or by heating by raising the temperature of the ambient medium, by thermoplastic resins, by cyanoacrylate adhesives and by dual component adhesives whose components harden over time or via the effect of a temperature increase when they are placed in the presence of each other.

42. (New) The method according to claim 23, wherein the contact bumps (20) are formed by galvanic growth.

43. (New) The method according to claim 27, wherein the contact bumps (20) are formed by galvanic growth.

44. (New) The method according to claim 42, wherein the contact bumps are made of gold.

45. (New) The method according to claim 43, wherein the contact bumps are made of gold.

46. (New) The method according to claim 23, wherein the contact bumps are made by selective printing.

47. (New) The method according to claim 27, wherein the contact bumps are made by selective printing.

48. (New) The method according to claim 46, wherein a resin charged with conductive particles is used.

49. (New) The method according to claim 47, wherein a resin charged with conductive particles is used.

50. (New) The method according to claim 48, wherein the resin is an epoxy adhesive.

51. (New) The method according to claim 49, wherein the resin is an epoxy adhesive.